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CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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DETROIT

Col. Ayres Charts History Of Depressions; Finds Low Commodity Prices Factor

Records Reveal Similar Secondary Post-War Depressions Followed Early Conflicts in Same Order

CLEVELAND, Sept. 15.—Col. Leonard P. Ayres, vice-president and business economist of the Cleveland Trust Company, sees the problem of increased revenues for the railroads as one of the most important and pressing of those affecting business recovery, according to the bank's mid-month bulletin released today.

Railroad securities, Col. Ayres points out, constitute the largest single grouped aggregation of American capital. Reduced rail revenues are causing investors to turn away from these securities. If rail revenues could be increased, he says, banking confidence in the future would be greatly restored and fiscal problems abroad would loom up less threateningly, for international lending would be facilitated. If that happened commodity prices would stop falling.

Col. Ayres says the much hoped for fall upturn in business does not appear to be developing, although production increases continue in some lines of consumption goods such as tires, shoes and textiles. The basic cause of the world's commercial difficulties, he adds, is in the weakness in commodity prices, and there is no evidence that the bottom has been reached.

Col. Ayres indicates that many readjustments still are necessary before business can improve materially. In an extension of his recent chart study of American business activity which carries the historical record back to 1790, or almost to the beginning of Washington's first term as President, he shows that the present depression is the most severe of twenty such periods in this long span of years. He also shows that each of our three great wars has been fol-

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G. M. IS SPENDING $500,000 TO PUSH OAKLAND-PONTIAC

Pontiac, Sept. 14.—Well under way at the present time is a $500,000 advertising campaign, being used by General Motors to push Oakland and Pontiac automobiles. Seventy per cent. of this total is being spent in newspaper advertising, with the remainder divided among magazine

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CRUDE RUBBER CONSUMPTION OFF DURING AUGUST

New York, Sept. 14.—Consumption of crude rubber by manufacturers in the United States for the month of August is estimated to be 27,586 long tons as compared with 31,937 long tons for July and 30,575 long tons for August 1930, according to statistics released by the Rubber Manufacturers Association today.

Imports of crude rubber for August amounted to 38,370 long tons, a decrease of 6.4 per cent. under the July figure of 41,004 long tons, although 10.3 per cent. above August 1930.

The association estimates total domestic stocks of crude rubber on hand August 31, at 240,816 long tons, an increase of 2.5 per cent. over July, and 51.8 per cent over August 31, 1930.

Crude rubber afloat for the United States ports on August 31 is estimated at 61,469 long tons as against 66,873 long tons on July 31 and 61,168 long tons on August 31, 1930.

Polk Puts August New Car Sales At 164,000, Based on 19 States

DETROIT, Sept. 14.—R. L. Polk & Co. today issued a statement on August passenger car sales which places rather a brighter outlook on the situation than appeared likely a week ago. The present statement is based on returns from nineteen states, representing 30.38 per cent. of the total registration for the country, and indicates that approximately 164,000 units were sold during August.

This is eighteen per cent. below the total for August 1930, which was 203,737 passenger car units.

In July of this year, total sales reached 194,291 passenger cars, which compares with 254,097 in July 1930. In spite of the lower totals, the monthly sales volume is following just about the normal course for this time of year.

DE SOTO ADDS 35 NEW FIELD MEN, 317 DEALERSHIPS

Detroit, Sept. 14.—Thirty-five new field representatives have been aded to the district sales staff of the De Soto Motor Corporation, according to L. G. Peed, general sales manager of the corporation. They are receiving a thorough training at the factory before taking up their duties in their territories.

"We found it necessary," said Mr. Peed, "to divide our districts into smaller territories, giving each field man a smaller block to work in. This has been due to the advent of the new Plymouth and to the recent announcements of improvements in the models.

"Since June 1 we have contracted with 317 new dealers. In one week alone ended August 22 we added fifty-two."

Following is the list of the new De Soto field representatives with the district to a part of which they have been assigned.

Atlanta—L. K. Folsom, M. S. Lowney.

Boston—Frank H. Wing, Kenneth G. Lewis.

Chicago—R. Walter Evans, E. G. Mann, O. T. Shelton, F. C. Beam.

Cincinnati—F. E. Young, Earl Pearsall.

Cleveland—Lee R. Bryant, E. W. Mohler, G. A. Johnston.

Dallas—H. H. Potter, J. Menz.

Detroit—A. R. Harmon, R. T. Lynn.

Kansas City—C. J. Hickman, J. F. Montgomery, Al Bonsecours, H. O. Meyer.

Minneapolis—Hill Blankenship, V. D. Gumbrill, W. A. Murray.

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DODGE ADDS 226 DEALERS DURING JULY AND AUGUST

Detroit, Sept. 14.—Dodge Brothers added 226 new dealers to their distributing organization throughout the country during July and August, according to a factory bulletin just received from A. vanDerZee, general manager.

The Dodge franchise includes the new, low-priced Plymouth, the Dodge Six and Eight, standard and heavy duty trucks, and built-for-the-purpose school buses and taxicabs, affording a 96.6 per cent coverage of the passenger car market and 98.1 per cent. coverage in the truck market.

"The full-line franchise permits a much wider range of operation than the one or two-year contract and because of its greater possibilities is being investigated by dealers everywhere," says Mr. vanDerZee.

AVAILABLE TRUCK HAS BIG SALES INCREASE

Chicago, Sept. 14.—The Available Truck Company here reports that sales on motor trucks for July and August of this year top every other July and August in the history of the company. In August, 1931, sales were larger than in any month since September, 1929.

CHEVROLET MEN GO WEST; DETROIT PLANTS ACTIVE

By CHRIS SINSABAUGH

DETROIT, Sept. 14.—Leading Chevrolet executives are off today for Indianapolis for the regular monthly meeting of the company's regional managers there tomorrow. It is unusual to hold these sessions at outside points, but this time Indianapolis has been chosen so the regional managers may have an opportunity to look-see at the former Martin-Parry commercial body plant in the Hoosier metropolis acquired just a year ago by Chevrolet.

From the central office here go President W S. Knudsen, General Sales Manager H. J. Klingler, General Auditor M. E. Coyle, General Manufacturing Manager C. E. Wetherald, Chief Engineer J. M. Crawford, Assembly Plant Superinvisor W. C. Williams, Assistant General Sales aMnagers D. E. Ralston and W. E. Holler, Truck Department Manager Sidney Corbett and other departmental heads.

Meeting them at Indianapolis will be the regional managers from the nine territorial divisions—C. L. Alexander, Flint; L. K. Cooper, Chicago; H. L. Horton, New York city; W. M. Packer, Buffalo; A. W. L. Gilpin, St. Louis; Felix Doran, Jr., Dallas; E. W. Fuhr, Oakland, Cal.; A. F. Young, Cincinnati, and L. S. Costley, Atlanta.

The visitors are promised a big surprise at Indianapolis in the way of expansions that have taken place in the eleven months Chevrolet has been operating there under the direction of J. A. Jamieson, general manager of the body plant. In that time all buildings have been renovated, obsoiete equipment scrapped and new installed, and an efficient group of wcrkmen trained in the precision manufacturing methods required for the construction of Chevrolet commercial bodies.

When Chevrolet took hold no designs for Chevrolet bodies were yet

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Steel Companies Holding Gains; Factors Favorable

YOUNGSTOWN, O., Sept. 14.—**Mahoning Valley steel companies this week held their recent gains in operations and in some instances improved mill schedules of recent weeks. Among the favorable factors were more definite reports that Ford and other automobile makers may increase their steel requirements within the next few weeks.**

During the first few days of this week, Youngstown steel plants were expected to be operating on a 39 per cent. basis, againsst 28 per a week ago. Valley trade authorities estimate that ingot production in the district is 11 per cent. higher than during the Labor Day suspension, but 18 per cent. below production a year ago.

Signs that an upturn in the steel industry may not be far off included the award of an 8,000 ton pipe contract to a valley manufacturer, resumption of operations at a sheet-making plant, and a small increase in Bessemer steel output. A large seamless pipe mill was expected to resume operations some time during the current week.

From the viewpoint of the flat steel manufacturers, reports of higher automobile production are of most importance. While sheet, strip and bar mill activity still is far below that of a year ago, the current week's schedules show a small increase, particularly in sheets. At Niles, O., fourteen sheet mills are reported operating against eight last week. Forty sheet mills at Niles continue idle, pending an improvement which is more dependent on the automobile industry than on miscellaneous consumers.

After the Labor Day suspension, Youngstown operations climbed from the year's low rate of 28 per cent. to 39 per cent., largely a result of the natural reaction from curtailed operations early last week.

Approximately twenty-five open-hearth furnaces were melting of the sixty-six available in the Youngstown district, while nineteen were melting a week ago and thirty-four a year ago. Tapering strip and tinplate mill requirements for steel account for the narrow loss in open-hearth production, which was, how-

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Late News Flashes

Toledo, O., Sept. 14.—It is claimed here that battery sales by the Electric Auto-Lite in August ran 80 per cent. ahead of July and that the first part of September is showing orders ahead of the similar period in August. No official statement has been made by the factory.

* * *

New Haven, Conn., Sept. 14.—Prof. Irving Fisher's wholesale commodity price index for the week ending September 12 stood at 68.9, unchanged for the previous week. This is the second week that there has been no change.

* * *

Los Angeles, Sept. 14.—California crude oil output in the week ended September 12 averaged 509,500 barrels daily, an increase of 2,700 barrels over the previous week, according to California Oil World.

* * *

Chicago, Sept. 14.—A statement of Houdaille-Hershey Corporation, as of June 30, 1931, shows total assets of $11,956,088, compared with $8,836,421 on December 31, 1930. Current assets totaled $4,081,929 and current liabilities $523,053, compared with $2,919,084 and $386,393, respectively, on December 31, 1930.

Public Spends Eight Billion Yearly for Upkeep of Cars

WASHINGTON, Sept. 14.—The automobile industry now ranks as the greatest single consumer of six basic industrial commodities while the American public is paying almost $8,000,000,000 a year—about $300 a car—each year for the upkeep and operation of those machines, according to information received and made available by the Department of Commerce.

Advices to the department from the trade showed, it was stated orally, that the automobile industry is consuming more than half of the national production of four of the six commodities in the list—gasoline, rubber, plate glass, and malleable iron. Of the other two—nickel and lead—the consumption is sufficiently large to influence the market when the automobile plants are buying or are withholding purchases. Additional information was made available as follows:

The information showed that the motor car industry consumed approximately 85 per cent. of the gasoline output; 83 per cent. of the rubber; 68 per cent. of the malleable iron; 30 per cent. of the plate glass; 55 per cent. of the nickel, and 26 per cent. of the lead produced in this country.

Those figures mean that in the average year the industry uses in excess of 14,000,000,000 gallons of gasoline out of a total national production of 16,600,000,000 gallons, and that the rubber consumption by this one industry amounts to something like 307,000 tons, or more annually. Lubricating oil consumption was shown to approximate around 500,000,000 gallons.

As to the side of the motor vehicle owner, the figures placed the number of motor-driven machines at approximately 26,000,000. It required gasoline to run them as is shown by the consumptive total of more than 14,000,000,000 gallons annually, besides the lubricating oils and repairs and replacements. All of these were paid for out of the pockets of the owners in return for the service of the vehicles.

From a survey of representative filling stations and service plants, basic calculations were arrived at from which it appeared the actual annual expenditures for maintenance and operation of motor vehicles was in excess of $7,800,000,000. Inasmuch as calculations of this kind usually err on the conservative side, the belief is held that the total runs to $8,000,000,000.

The figures furnished the department divide the total cost of upkeep and operation as follows: Gasoline and lubricants, $2,730,000,000; repairs and maintenance, $2,132,000,000; replacements and parts, $1,430,000,000; tires, $884,000,000, and accessories, $624,000,000.

Whether the measurement of the industry's size and value is accurate within a few millions of dollars, there is no way of ascertaining at this time, but the scope indicated by the statistics serves to describe its importance as a key industry in the American economic structure.

In addition to these phases, the magnitude of the business directs attention forcibly to the part the industry plays in maintenance of employment levels in this country. When, as has occurred in the last two years, the automobile plants have been unable to take care of their usual share of workers and their sources of supplies also have suffered from the slackened demand, the employment question takes on much significance.

Col. Ayres Charts History Of Trade Depressions

(Continued from Page 1)

lowed by a primary and a secondary post-war depression.

The War of 1812 was followed by a secondary post-war depression lasting nearly four and a half years and the Civil War by one lasting six years. Apparently it takes about ten years for a secondary post-war depression to develop.

"Our troubles are not the result of some mysterious and hitherto unsuspected weakness in our social system," concludes the colonel, "nor can they be cured by adopting a five-year, or ten-year, or twenty-year plan of organization for our industries, our banks and our commerce. The true lesson of this depression is that we cannot afford to have any more great wars."

Col. Ayres last April completed his study of business cycles back to 1854, which at that time was nearly twenty-five years further than any previous study of its kind. The record now is carried back another sixty-four years, covering in all a period of 142 years.

In the current bank bulletin the plight of the railroads is listed as one of three key logs in the present economic jam. The combination of fiscal troubles abroad constitutes another key log, with unbalanced governmental budgets presenting a warning to American statesmen. A third key log, says Col. Ayres, lies in the fact that banks here and abroad are still restricting credit rather than expanding it.

"They are insuring their own safety and security by accumulating liquid resources on a scale seldom if ever reached previously," he declares. "This is good banking for the individual institution, and it safeguards the deposits, but it does not aid business recovery. It does not stimulate new business initiative, or encourage enterprise. Probably it is inevitable that the policy of safety first should be followed while commodity price weakness continues, but the condition constitutes one of the real difficulties in the general situation."

One of the few hopeful things that Col. Ayres sees in the present situation is that individual debts are being rapidly paid off in this country. It always has been true, he says, that when the end of a prosperous period comes hundreds of thousands of people in this country are heavily burdened with debts that have been lightly assumed. During the hard times that follow these debts are steadily paid off, and savings accumulate. Eventually the savings predominate and seek active use, and recovery starts.

Charting of the record of industrial production in the United States reveals that activity reached a new low for the depression period in July. In the early months of 1931 some advance was registered, but since last April each month has been lower than the preceding one. "Unfortunately," says the review, "it seems probable that August will fall lower yet." The high point of prosperity, as measured by industrial production, was reached in June, 1929, at a level of 14.7 per cent. above normal. The chart is based upon figures compiled by the Federal Reserve Board.

Col. Ayres finds the reason for restricted building activity in a study showing that since 1924, rents have been declining much more rapidly than building costs. Building costs, therefore, still are relatively high, constituting a serious obstacle to resumption of construction.

In the current bank bulletin, Col. Ayres devotes most space to his study of post-war depressions. Wars, he finds, cause sudden advances in commodity prices, from which farmers, miners and others close to the land benefit most. They have on hand goods which sell for high prices. Then comes speculation in farm lands, the utilization of new land and increased production. This period is a difficult one for city dwellers, whose wages advance slowly. Then comes price deflation and depression for both farm and city dwellers, causing a primary post-war depression. Farmers find themselves burdened with heavy mortgages placed at earlier high land values and there issues a period of urban prosperity, with food relatively cheap in the cities. There is a boom in city real estate and great activity in construction. There is a general speculation in almost everything except commodities. Fictitious values are created. Country districts soon cannot consume their normal proportion of goods produced in the cities. Then comes a secondary decline in commodity prices, a collapse of city real estate values and a secondday post-war depression afflicting urban communities and country districts alike. Wages, prices and profits are painfully jarred and many readjustments are necessary.

Unfailing Performance

The quality of a battery must be measured by performance.

Millions of car owners can attest to the long life and dependable performance of USL Batteries—especially in cold weather when a maximum of power is required.

For years leading car manufacturers have used USL Batteries as original equipment, because of an excellent performance record.

Eighteen thousand service stations and dealers stand ready to further guarantee the unfailing performance of USL Batteries.

Quality is paramount with USL.

USL Battery Corporation

Niagara Falls, New York

Other USL factories at Oakland, California; Toronto, Canada; Sydney, Australia; Manchester, England; Paris, France.

BACK OF USL

1. Thirty-two years' battery building experience.
2. Six great factories.
3. Standard equipment on leading cars.
4. 18,000 service stations and dealers.
5. The USL Insured Life Plan.

USL BATTERIES

Long Life—Dependable Power

DE SOTO ADDS 35 NEW FIELD MEN, 317 DEALERSHIPS

(Continued from Page 1)

New York—Bert Maucher, E. S. Dennison.
Omaha—R. J. Schierbrock, B. D. Huesner, W. A. Richardson.
Philadelphia—Alex Munchweiler Allen Foster.
Portland—A. P. Villain.
San Francisco—Gordon Clayton.
St. Louis—Louis Goodhart, James M. Buckner.

SPARKS from DETROIT

No October Chevrolet

* * *

Greeting the Legion

* * *

Cash in Accessories

* * *

Chris Sinsabaugh—Detroit Editor

ASK at any of the Detroit factories when the 1932 models will make their appearance and you will get the same answer—they don't know. What's more, they are telling the truth. Oh, yes, they may have a vague idea on the subject, but at this writing there does not seem to be any one company which can name a positive date. And that goes for Chevrolet, too.

Not so long ago this column conductor accepted as a fact an unconfirmed report that Chevrolet was planning an October debut. Possibly this came about because last year Chevrolet announced at that time and the conclusion was that this year it would do so at the same time.

Now I find I missed the target altogether with my shot. Inquiry across the street from this outpost convinces me that not even the higher-ups at Chevrolet know definitely—it still is a matter for debate at the weighty conferences of the operations committee. Certain it is, however, it will not be October.

* * *

AS the in dustry checks off the rapidly passing fall days it becomes more apparent that few if any of the manufacturers will announce before late November or in December. With many of them the debuts will be reserved for the New York show.

In the meantime there is a noticeable tendency on the part of the manufacturers to slow down on 1931 production. This step is being taken so that dealers may have a chance to move all this year's models before the new stuff comes out, leaving the decks clear for the introduction of 1932 lines in the early winter months or right after the first of the year.

* * *

WHAT with the Harmsworth trophy regatta and the state fair last week and the American Legion coming next week, there are few pauses in the conversation at this end of the lake. That Legion affair appeals to the automobile industry, and we hear of plans being made by various factories to help entertain the soldiers.

Chevrolet is tackling it in a big way. Fifty-three special sedans have been fitted up, one for each of the various state commanders and for the Canadian, Hawaiian and Porto Rican big shots. Each will be driven by a chauffeur and will be at the beck and call of the commander from 9 a. m. to 12 midnight. After the latter hour it is hard to say what will happen. Maybe the boys who refuse to go to bed early will have to walk home.

These Chevvies are going to look like the last word in automobile construction, each painted as white a white as can be mixed, with red, blue and gold trimmings.

* * *

WE'RE going to get a big kick out of the Forty-and-Eight parade, for in that will be many old cars that have seen war service. We understand Gen. Pershing will ride in the same Cadillac which carried him so many miles over French roads.

* * *

AUTOMOTIVE DAILY NEWS has been telling you dealers about the money to be made out of accessories, but it has been hard getting concrete facts. But in a report from Nash we find something that ought to be convincing.

Nash tells us that in July in twelve cities purchasers of its cars spent $61,897 for special accessories and extras, and Nash, you know, is noted for putting on complete equipment. In June, they say, Nash owners spent $44,446 for Nash engineered accessories supplied to dealers through the Nash factory.

These sales included de luxe trunks, spotlights, driving lights, metal tire covers, new type seat covers, draft deflectors, special clocks, car heaters, tire pressure gauges and even lubricating oil and body polishes best suited to Nash use.

Used Car Advertiser's Dollar Buys Better Return This Year

Cost of classified used car advertising as reported by twenty member firms, showing average cost per car sold, percentage of total sales and general averages:—

MAY, 1930

Firm No.	Amt. of Adv.	No. Cars Sold	Av. Per Car	Total Sales	Per Cent.
2	$ 5.13	1	$5.13	$ 1,600.00	.32
3	5.70	4	1.43	3,154.42	.18
5	98.83	46	2.15	18,010.00	.55
6	306.87	16	19.18	3,715.00	8.26
7	71.60	59	1.21	11,418.50	.62
8	83.00	50	1.66	9,098.00	.92
10	1,244.33	166	7.50	41,807.89	2.98
11	325.10	91	3.59	23,141.50	1.40
12	414.00	46	9.00	10,140.00	4.08
13	1,164.90	56	20.80	9,134.50	12.75
14	483.16	90	5.37	21,378.50	2.26
15	None	20	....	5,358.00	...
16	342.73	30	11.42	13,835.00	2.48
17	593.46	109	5.49	32,572.00	1.84
18	129.68	18	7.22	4,167.00	3.12
19	271.84	76	3.58	16,083.96	1.69
20	1,054.63	144	7.32	41,217.35	2.56
21	49.70	69	7.72	26,800.00	.19
22	270.12	45	6.00	9,483.00	2.85
23	.....	...	...	.....	...
20	$6,919.98	1,136	$6.09	$302,124.62	2.29

MAY, 1931

Amt. of Adv.	No. Cars Sold	Av. Per Car	Total Sales	Per Cent.
$ 135.85	28	$4.85	$10,483.00	1.30
41.46	1	41.46	85.00	49.00
225.35	65	3.47	25,708.50	.90
55.12	7	7.87	2,600.00	2.12
79.51	44	1.81	10,746.25	.74
None	41	....	8,199.50	...
215.59	86	2.51	20,938.00	1.03
143.05	61	2.35	14,600.00	.98
94.26	21	4.49	5,411.99	1.74
580.21	53	10.95	15,839.80	3.66
268.75	87	3.09	23,094.47	1.16
1.80	23	.08	6,276.00	.03
239.26	39	4.84	17,335.00	1.09
285.55	58	4.92	27,320.00	1.04
5.93	12	.49	4,423.00	.13
86.26	75	1.15	17,608.14	.49
351.66	71	4.95	28,486.62	1.23
98.90	51	1.94	11,228.05	.88
248.33	35	7.10	8,710.00	2.85
60.70	4	15.18	2,897.50	2.09
$3,217.54	862	$3.73	$261,990.82	1.23

Months of June, 1930, and June, 1931

JUNE, 1930

Firm No.	Amt. of Adv.	No. Cars Sold	Av. Per Car	Total Sales	Per Cent.
2	$ 15.48	2	$7.74	$ 2,375.00	.65
3	9.25	8	1.16	2,965.00	.31
5	152.39	24	6.35	12,437.50	1.23
6	331.09	17	19.48	5,755.00	5.75
7	95.69	54	1.77	11,044.00	.87
8	65.00	47	1.38	6,590.00	.99
10	751.37	99	7.59	27,390.60	2.74
11	350.20	65	5.39	19,435.40	1.80
12	183.00	53	3.45	10,140.00	1.80
13	197.06	27	7.29	10,549.50	1.87
14	494.92	140	3.54	30,054.90	1.64
15	None	28	....	5,429.34	...
16	273.63	35	7.82	12,190.00	2.24
17	376.25	65	5.79	32,560.00	1.16
18	158.41	8	19.80	1,990.00	7.96
19	255.75	83	3.08	17,067.00	1.50
20	364.42	63	5.78	22,128.62	1.65
21	50.69	56	.91	17,700.00	.29
22	410.92	44	9.34	9,796.00	4.20
23	.....	..	....	.....	...
20	$4,535.52	918	$4.94	$257,597.86	1.74

JUNE, 1931

Amt. of Adv.	No. Cars Sold	Av. Per Car	Total Sales	Per Cent.
$ 60.17	32	$1.88	$ 7,689.25	.78
10.07	2	5.04	420.00	2.40
168.29	27	6.23	11,856.50	1.42
95.31	6	15.88	2,395.00	3.98
63.91	44	1.43	9,843.47	.64
None	51	....	7,416.00	...
180.38	64	2.82	19,738.70	.92
109.06	46	2.37	12,494.00	.88
193.19	25	7.73	8,075.00	2.39
346.07	23	15.05	7,852.50	4.41
311.86	75	4.16	19,163.00	1.63
1.08	17	.06	3,653.00	.03
193.02	31	5.51	14,367.00	1.19
294.61	65	4.53	26,370.00	1.26
12.52	15	.83	4,180.00	.30
109.36	57	1.92	15,886.97	.69
356.28	68	5.24	27,327.10	1.30
103.56	38	2.74	7,492.22	1.38
226.74	48	4.72	10,677.00	2.12
105.68	4	26.42	4,940.00	2.14
$2,940.16	738	$3.98	$221,746.71	1.33

New York, Sept. 14.—That the used car advertiser's dollar is buying a better return this year than during 1930 is indicated in a survey recently completed by the San Antonio Auto Trades Association covering the months of May and June.

Where the dealer gets the break is in the fact that during May, 1930, the automobile merchants of San Antonio (reporting in the survey) spent a total of $6,919.98 for advertising used cars. As the result of this advertising, or at least during the time the money was being spent, these dealers sold a total of 1,136 cars, representing an average cost of $6.09 for advertising each vehicle.

In May this year the same dealers spent $3,217.54 for used car advertising and sold 862 cars, or an average per car cost of $3.73.

It was also interesting to note that during May, 1930, these dealers had a total used car sales volume of $302,124.62 of which they spent $6,919.98 for advertising, or 2.29 per cent. of their total volume. In May this year the total used car sales volume brought the dealers $261,990.82, of which they spent $3,217.54, or 1.23 per cent. of their gross income.

The savings in June this year as against June last year were not quite so sharply defined. In both months, however, the average cost per car was below May last year, while in June the per car cost was slightly higher than during May the preceding month.

Six-Stroke Engine in Germany

News comes from Germany that a professor at the high school of engineering at Berlin has evolved a new type of engine working on a six-stroke cycle. The name of the professor is Terres, and a few days ago he invited some of his colleagues to explain to them the theory and working of the invention on which he has worked for twenty years.

The new engine looks similar to one of the orthodox type, but the combustion process is divided into two stages—a pre-combustion and a main-combustion stage. The engine draws in petrol vapor with a very small admixture of air, which mixture is then compressed and ignited in the usual way. There being little air in the gas, the mixture burns slowly and only part of the petrol vapor is consumed. At the end of the stroke the exhaust valves remain closed and the gas is once more compressed, when a powerful jet of hot compressed air is blown into it through a nozzle provided for the purpose. The gas, receiving a sudden surplus of oxygen, immediately flares up and produces the main power stroke, at the end of which the exhaust valves open to start the cycle anew.

It is claimed that by this process a maximum amount of mechanical energy is obtained from a given quantity of fuel. Whereas in the normal petrol engine the degree of efficiency of power conversion from petrol is only between 25 and 30 per cent., in the new engine it reaches 40 to 50 per cent. This means a saving in fuel of approximately 40 per cent. An old Benz engine that formerly delivered 10 horse power has been converted to work on the six-stroke principle and now supplies 15 horse power on the same quantity of fuel.

The six-stroke cycle opens up new vistas in the development of fast Diesel engines, the main difficulty in which is to secure efficient fuel consumption at the high revolutions which are required to cut down the weight of these engines and make them practicable for automotive work.

It is asserted that in heavy-oil engines working on the six-stroke principle the heavy-oil vapor molecules are cracked in the pre-combustion stage so that in the second stage the fuel burns readily and completely. The combustion processes in this new cycle appear already to have been thoroughly investigated, so no difficulties are expected in the practical development of the engine.—The Autocar (England).

GABRIEL APPOINTS MARK HARRIS AS CHIEF ENGINEER

Cleveland, O., Sept. 14.—George H. Ralls, vice-president and general manager of the Gabriel Company, announces the appointment of Mark Harris as chief engineer.

The Gabriel Company products include both Gabriel thermostatic and automatic hydraulic shock absorbrs and Gabriel dash-controlled hydraulic shock absorbers.

Harris is well fitted to assume his new duties as chief engineer. His experience embraces over twenty years in the automotive industry, in both engineering and sales work. Among the other large manufacturers he has served are the General Motors Corporation, H. H. Franklin Manufacturing Company and American Steel Foundry.

F. C. RYAN APPOINTED

Trenton, N. J., Sept. 14.—F. C. Ryan, at one time identified with the New Jersey Zinc Company and later with the Johns-Manville Sales Corporation, has been appointed sales manager of the Newark Wire Cloth Company, Newark.

DURING 1931, sales of Willys cars as compared with 1930, show up much more favorably than the figures for the industry as a whole. Here is convincing proof of the consumer acceptance built up by these popular cars.

Write or wire for franchise particulars

Willys-Overland, Inc., Toledo, O. Willys-Overland, Ltd., Toronto, Can.

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A BIG SIX priced like a four
A POWERFUL EIGHT . . .
A BRILLIANT KNIGHT . . .
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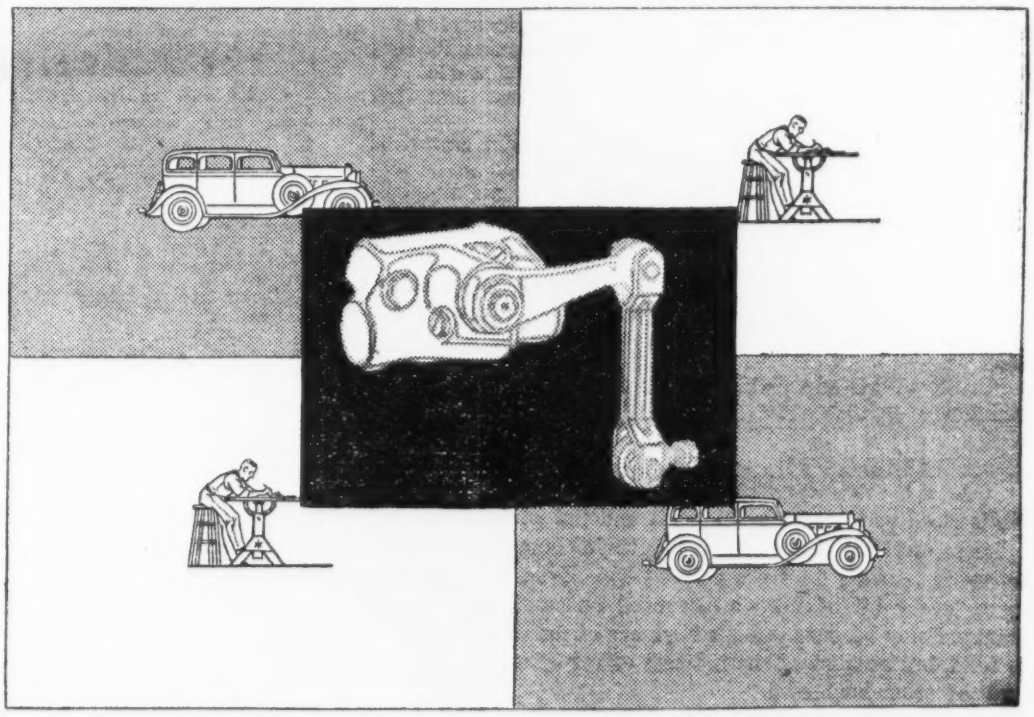

DESIGN THE SHOCK ABSORBER INSTALLATION WHEN YOU DESIGN THE REST OF THE CAR . . . IT PAYS

The wide range of adjustment of Delco-Lovejoy hydraulic shock absorbers makes it possible to fit them to any automobile spring suspension. But it is not always possible, after a car has been completed, to locate the shock absorbers advantageously. That is why Delco engineers like to co-operate with you while your car is still on paper. They will show you where to place the shock absorbers for best effectiveness—often they can simplify a mounting, and save you much on installation costs. It pays to call in a Delco engineer while your new car models are being planned.

Delco
DUODRAULIC
SHOCK ABSORBERS

DELCO PRODUCTS CORPORATION, DAYTON, OHIO

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday and Monday by
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Detroit Bureau, Chris Sinsabaugh, editor, 427-8 Fisher Building, Detroit, Mich. Telephone Trinity 2-3500. Contributing editor, John C. Wetmore.

Praise From a Rival

WE recently happened upon a letter in the correspondence section of the British motoring paper, The Motor. This epistle was from an Englishman in South Africa and it gives such a flattering picture of our small American cars in that far off land that we are going to quote it in extenso:

"I am employed by an all-British company and on my arrival from England two years ago was considerably surprised to find that practically all my firm's staff cars were of American manufacture. When I was allotted my territory, however, I very soon realized that it was not lack of patriotism that made this necessary, but simply and very truthfully the fact that a British car to do the same type of work would cost about £500 as against £200. My present working area is the eastern province of the Cape and includes the Transkei, roughly the size of England and Scotland together. No doubt when some of your South African readers see this they will sympathize, as the Transkei has easily the most impossible roads in the whole of the civilized world. A trip through this country is a deal more trying than the Monte Carlo rally.

"What we want is a sturdy four or six cylinder car with at least 20 horse power, 4 feet nine inch track, generous ground clearance, long wheelbase and springs, an all-steel body, without stylish dash, leather upholstery and sunshine roofs (with the thermometer at 110 in the shade we do not crave the sun's rays)."

The writer adds that he would like to see a British car for use out there that would do the work as comfortably as the Chevrolet or the Ford at somewhere near a competitive price.

Surely this is superlative praise for our American cars in the lowest price bracket.

Why They Watch Us

THE close watch which financial and industrial America keeps on the automotive manufacturing companies of the country is scarcely to be wondered at. Even Wall Street peruses every bit of news concerning automotive developments, not only because it deals in stocks of manufacturers in this field, but because of the indirect effect of our industrial output on other busineses.

When we remember that the automotive industry is the best customer of the steel and iron business, of the rubber industry, of the petroleum operators in all their various divisions, of the plate glass makers, of the producers of nickel and even of the lead producers, we need no longer wonder at the kindly interest that financiers take in our progress.

If the ultimate demand for replacements starts the automotive industry into production in keeping with what we have come to consider normal levels, the effect would be felt almost instantaneously in a score of industries.

It seems quite probable that the total registration for 1931 will show a decrease under the top figure for 1930. This will be the first time that such a thing has happened since the industry began. Under analysis this means that America will begin the year 1932 with somewhat less transportation efficiency than it had when 1931 started.

Will the American people long be satisfied to permit such a condition to exist? We have very serious doubts. Men who have once had motor cars seldom will consent to be long without them. We have an idea that the demand for replacement of motor vehicles that have gone out of service will bring some pleasant surprises when the buying season of 1932 gets under way.

MOTOR VEHICLE FUELS TAX IN NEW JERSEY IS NOW DEDUCTIBLE

Trenton, N. J., Sept. 14.—The Internal Revenue Bureau has ruled that the motor vehicle fuels tax under the New Jersey state law is deductible in the Federal income tax return of the consumer who pays it and to whom it is not refunded.

The bureau ruled, however, that if such a tax is added to or made a part of the business expenses of a consumer it cannot be deducted by him as a tax. Deduction may be made on all fuel purchased after December 1, 1930, when the motor vehicle law went into effect.

Prior to December 1, 1930, the New Jersey gasoline tax was deductible for Federal income tax purposes by the distributor who paid it and not by the consumer. The bureau found the revised tax law imposed the tax upon the consumer rather than on the distributor.

The ruling was made in a case brought before the bureau by New Jersey distributors. It said the Legislature of New Jersey did not indicate any intention to impose the motor vehicle tax upon the consumer except when the fuel was not used for business purposes.

ACCURATE PARTS NAMES BURKHARDT IN MID-WEST

Cleveland, O., Sept. 14.—The Accurate Parts Manufacturing Company announces the appointment of Fred H. Burkhardt as the new Accurate representative in the Middle Western territory.

Burkhardt will cover the states of Iowa, Nebraska, Missouri and Kansas, making his headquarters at Kansas City.

COMING EVENTS

SEPTEMBER

8-17—**Utrecht, Holland.** Utrecht Fair, bus and truck show.
16-17—**Atlantic City, N. J.** National Petroleum Association, annual meeting, Hotel Traymore.
17—**Chicago, Ill.** Steel Founders Society, convention.
20-26—**Springfield, Mass.** Eastern States Exposition.
21-25—**Boston, Mass.** American Welding Society, meeting. The following societies will participate: American Society for Steel Treating, American Welding Society, Iron and Steel Division, A. S. M. E.; Machine Shop Practice Division, A. S. M. E.; Iron and Steel Division, A. I. M. E.; Institute of Metals, A. I. M. E.
28-29—**Atlantic City, N. J.** National Association of Motor Bus Operators, fifth annual meeting, Hotel Ambassador.
26-Oct. 2—**Atlantic City, N. J.** American Electric Railway Association, annual meeting.

OCTOBER

1-11—**Paris, France.** International Automobile Salon.
2- 3—**Houston, Tex.** American Institute of Mining and Metallurgical Engineers, petroleum division meeting
7- 8—**Detroit, Mich.** Society of Automotive Engineers, national production meeting.
12-13—**Pittsburgh, Pa.** Pennsylvania Automotive Trades Association, convention.
12-16—**Chicago, Ill.** National Safety Council.
14-16—**Pittsburgh, Pa.** Society of Industrial Engineers, convention.
14-15—**Albany, N. Y.** New York Automobile Dealers Association, convention.
15-17—**Pittsburgh, Pa.** American Gear Manufacturers Association, convention.
15-24—**London, England.** International Motor Exhibition, Olympia Hall.
19-22—**Chicago, Ill.** National Hardware Association, convention.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.
23—**New York City.** American Iron and Steel Institute, convention.
27-28—**Chicago, Ill.** American Railway Association, Motor Transport Division, meeting

NOVEMBER

Copenhagen, Denmark., Motorcycle, truck and bus exposition.
5-14—**London, England.** International Commercial Motor Transport Exhibition, Olympia Hall.
10-12—**Chicago, Ill.** American Petroleum Institute, annual meeting, Hotel Stevens.
28-Dec. 9—**Brussels, Belgium.** Automobile Salon.
30-Dec. 4—**New York City.** American Society of Mechanical Engineers, annual meeting.

DECEMBER

7-12—**Atlantic City, N. J.** Motor and Equipment Association and National Standard Parts Association, Joint Trade Show.
9-11—**Atlantic City, N. J.** American Institute of Chemical Engineers, meeting.

JANUARY

11-14—**Detroit, Mich.** American Road Builders Association, twenty-ninth convention and show.
9-16—**New York City.** National Automobile Chamber of Commerce, National Automobile Show.
9-17—**Los Angeles.** Annual Automobile Show of the Los Angeles Motor Car Dealers Association.
23-30—**Minneapolis.** Annual Automobile Show of Minneapolis Automobile Trade Association.
30-Feb. 6—**Chicago, Ill.** National Automobile Chamber of Commerce, National Automobile Show.

Contemporary Comment

FOR a number of years A. Lundgren of the Swedish Government Testing Institute has carried out investigations on the fatigue limits of steels, and he recently published his results, which are of considerable interest. The testing machine employed by the Swedish "Alpha" machine, for rotating specimens.

Lundgren has given considerable attention to the relation between the endurance limit and other mechanical properties of the steels investigated. No marked relation was found between the fatigue limit and the limit of proportionality or the yield point. On the other hand the relation between the endurance and the ultimate stress seems to be better defined. To support this conclusion Lundgren used not only his own results but also made a compilation from most previous investigators in this field.

The ratio K between fatigue limit and ultimate stress was found to vary within certain limits for a given class of steels, and to increase with increasing ductility as measured by reduction of area in the tension test. In plain carbon steels with pearlitic structure the value of K was found to be about 0.37 when the reduction of area was less than 36 per cent. Pearlitic nickel and chromium steels give higher values of K than the plain carbon steels.

In quenched and tempered steels with sorbitic structure the value of K is considerably higher than for pearlite steels. While the value K — 0.39 was found in a pearlitic steel with a reduction of area of 40 per cent., the corresponding value in a sorbitic material was found to be K — 0.58. In the sorbitic steels the increase of K with the reduction of area is not so pronounced as in the pearlite steels.

Quenched and tempered steels with a relatively low content of carbon and consisting of a mixture of ferrite, sorbite and pearlite (with the ferrite to a large extent in the form of a network) show considerably lower values of K than

(Continued on Page 7)

With every spoke a permanent part of the wheel assembly, giving equal tension in all arcs of the wheel, enormous strength and rigidity are thus secured in Kelsey-Hayes Steel Spoke Wheels.

WOOD · WIRE · DISC · WHEELS

KELSEY-HAYES WHEEL CORP.
DETROIT, MICHIGAN

The Automotive Diesel Engine

By MAX HOFFMAN,
Chief Diesel Engineer, Waukesha Motor Company

Theoretically, Diesel engines of suitable power and speed can be built to replace the conventional gasoline engines in almost any self-propelling vehicle or other machinery using this source of power. For obvious reasons most Diesel engines, when first put on the market, will not be as reliable as a modern gasoline engine. But it has been proved that there are no problems connected with it that cannot be solved, so it can be said with confidence that the perfection of the automotive Diesel engine is merely a question of time and experience, just the same as it was with the gasoline engine in its earlier days.

To judge by the progress made with the high-speed Diesel during the last few years, it seems that in the near future there will be such engines on the market ready to prove that in regard to reliability and simplicity of operation, they can compare favorably with any up-to-date gasoline engine. And, besides, they will have all those well-known advantages over the carburetor engine, such as steadier torque characteristics, reduction of fuel expense and others.

No Complete Victory for Automotive Diesel

However, in spite of the many claims made for ultimate supremacy of the automotive Diesel over the gasoline engine, there are no hopes that this complete victory will ever become a fact. It would not even be desirable for the Diesel engine industry.

Let us assume only that the Diesel engine would conquer some of the gasoline engine's principal markets, such as the passenger automobile. The law of demand and supply would reduce the price of the gasoline, and raise the price of the fuel oil probably to such an extent as to cancel most of the savings in fuel expense made with the Diesel automobile. At the same time, however, this change of the fuel prices would seriously affect, in favor of other types of prime movers, most of the other markets of the Diesel engine in which it is now safely established or even dominating. The objection may be raised that fuel cracking processes can be altered to meet these changed conditions, or that recent inventions make the conversion of coal into fuel oil a commercial possibility. It is admitted that these factors will have a tendency toward a less abrupt change in the fuel prices, but it is very doubtful whether they would be powerful enough to keep the prices of fuel oil and gasoline anywhere near their present levels.

Price a Feature

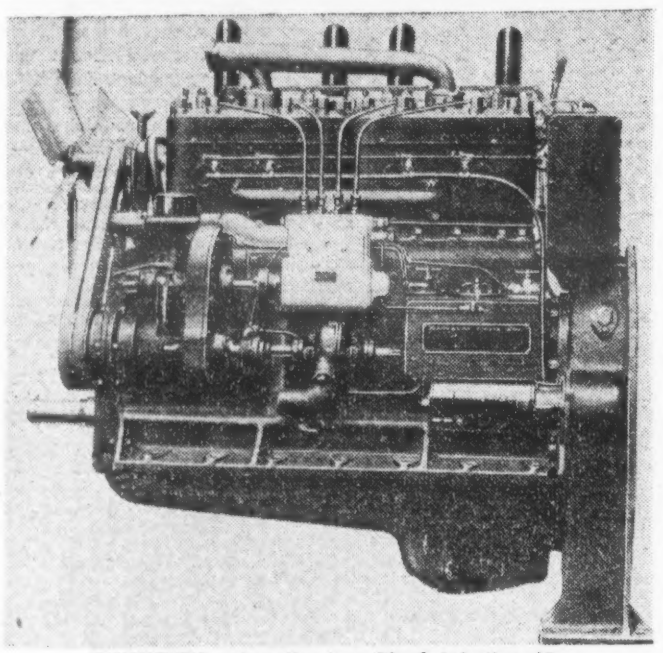
But even if the basic prices of gasoline and fuel oil would remain unchanged, the following example will demonstrate why the Diesel engine has little chance ever to replace the gasoline engine in the automobile. A medium-sized car, being driven about 15,000 miles per year and having a gasoline consumption of 16 miles per gallon at a cost of 19 cents, would require a yearly fuel expense of about $178.

Assuming that a Diesel automobile of similar characteristics would average twenty-five miles per gallon of fuel oil costing 7 cents, its fuel expense would be about $42. With a yearly reduction of the fuel bill amounting to $136 and an average life of such automobile of six years, $816 represents the total possible saving in fuel. This calculation, however, must be considered highly optimistic, in view of the possibilities of state taxes and increased handling charges on fuel oil in case it should be used and distributed in a way similar to that of gasoline. Furthermore, the average automobile buyer will never accept a Diesel engine in his automobile unless the increase of cost of this engine over the gasoline engine is considerably less than the amount represented by the possible saving in the fuel bill. All these conditions set a price limit for an automobile Diesel capable of competing economically with a modern gasoline engine that is considerably lower than its manufacturing cost would probably be.

Diesel Suited to Bus Field

Applying the same calculations to a motor bus, however, gives an entirely different picture. The following figures are assumed for a long-distance passenger bus: Two hundred miles daily mileage, 250 days yearly service, four miles per gallon gasoline consumption at a tank-wagon price, plus state tax of 12 cents per gallon. Here the fuel bill would run as high as $1,500 a year. A comparable Diesel engine would have a fuel oil consumption of six miles per gallon at a price of about 5 cents. Thus, the Diesel bus fuel bill would amount to $417 and show a yearly saving in fuel of $1,083. With an average life of four years, a Diesel bus would save $4,332 in fuel. Even with a small production it should be possible to build a Diesel engine for this purpose with an increase of about $1,000 over the price of a high-grade gasoline bus engine of about the same performance. In this case the adoption of the automotive Diesel looks like a paying proposition.

There is one advantage of the Diesel engine for automotive vehicles that so far has been given very little attention. When determining the size of the engine for any vehicle, certain requirements for acceleration and hill-climbing



WAUKESHA automotive type Diesel, injection side

speed must be met. This requirement of a certain power at a reduced engine speed, rather than the peak horse power of the engine, determines the minimum size of the engine. And here it is where the Diesel engine with its high torque at lower speeds outranks the gasoline engine. In other words, it should be possible to replace, for instance, a 100-horse power gasoline engine in a truck or bus by a suitable Diesel engine of 80 or 85 horse power without sacrificing any acceleration, hill-climbing power or maximum speed on level roads.

Another of the advantages of the Diesel engine worth being pointed out in connection with motor vehicles is that the reduction of heat losses through the cooling water will enable the use of a radiator about 20 per cent. smaller than with a gasoline engine of equal power.

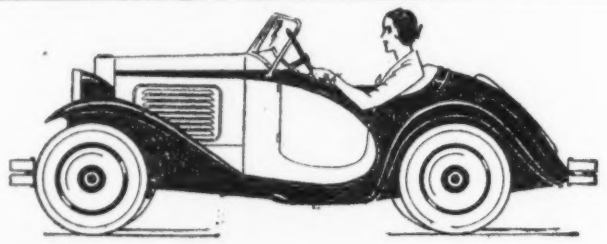
Manufacturing Costs Must Be Lowered

The two examples given above lead to one conclusion: The market of the automotive Diesel engine as a competitor of the gasoline engine is limited by its first cost, or, to define it more clearly, by the ratio between its advantages and its cost. Very little possibility is left to increase the advantages of the Diesel engine by improving the fuel economy or rising the b. m. e. p. to any important degree without increasing the cost simutaneously. The only way that the market can be enlarged is by the reduction of manufacturing cost for such engines.

Fuel Pumps and Injectors

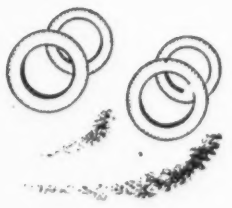
Too much emphasis can not be laid upon the necessity for specilization in the manufacture of Diesel engine parts like fuel pumps and injectors as a cost reducing factor. Just as the gasoline engine manufacturer of today buys carburetors and magnetos from outside sources, the manufacturer of automotive Diesels must be able to purchase fuel pumps and injectors from firms that specialize in this line and are able to provide these parts at a fraction of their present cost. However, it will be necessary that these parts manufacturers design their product in such a way as to make it usable for the different types of combustion chambers, injection and fuel governing systems as will sur-

(Continued on Page 11)



Let this figure talk to dollar-wise motorists

6/10¢ a mile is all an Austin needs for gas, oil and tires!



There are big profits from small purses for the man who sells Austins at a time like this! And the selling is a simple job with such a hard-hitting array of sales facts.

For instance, "An Austin costs you only 6/10¢ a mile for gas, oil and tires." For instance, "You can buy an Austin business coupe and drive it from coast to coast, spending in all less than the list price of any other car."

Austins please people who look for smartness and people who demand long service on all kinds of roads. There's a range of models wide enough to suit individual tastes—and a generous profit for dealer and distributor in the sale of every model.

Franchise information on request.

PRICES

Business Coupe	$330
Standard Coupe	395
Runabout	395
De Luxe Coupe	525
Cabriolet	550
Panel Delivery	450
Quarter-Ton Pick-up Delivery	325

All Prices F. O. B. Butler, Pa.

BANTAM ENGINES
Bantam Engines available for industrial use. Write Dept. K.

THE AMERICAN Austin

THE AMERICAN AUSTIN CAR COMPANY, INC., BUTLER, PA.

Two Billions for Highways Set as Minimum for 1932

WASHINGTON, Sept. 14.—Two billion dollars for roads and streets in 1932 is held to be the minimum necessary to preserve normal activity without considering extra construction to relieve unemployment. Motor vehicle taxes alone will produce half this sum, according to W. R. Smith, president of the American Road Builders' Association.

The association executive believes that relief of unemployment should be effected through additional funds made available from Federal, state, county and city sources. The effectiveness of road and street construction for unemployment relief has been accepted by cities and counties in previous emergencies and construction campaigns inaugurated for relief. The Federal government and the states tested the use of road construction to give men work during the past year and practically all the money appropriated was expended by September. Other forms of relief through public expenditures have had difficulties in getting under way.

More than a million men are now employed in road and street building, and it is estimated that two other men are busy furnishing materials, equipment and supplies to each road worker. Federal aid and state road construction, this year exceeding $1,000,000, employs 350,000 men; county and township road work, expending in 1931 in excess of two-thirds of a billion, probably keeps as many men busy because of its diversified character; city paving, somewhat reduced this year, has almost as many on the pay rolls. These estimates from reliable sources show the extent of employment relief afforded by highway construction, according to the association representative.

"Analysis of the dollar spent on road and street work shows that more than 75 per cent. of the money expended on highways ultimately goes to labor," said Mr. Smith. "Labor, equipment, fuel and secondary materials are used in the preparation of road and street materials. In turn, the secondary materials employ labor in their manufacture.

"Highway work is the largest market for cement, sand, gravel, crushed stone, vitrified brilk, asphalt and tar. Steel has a wide variety of uses. Railroad freight tonnage of highway products is a considerable item.

"Road and street building is one of the largest activities—probably the most uniformly distributed—for the employment of unskilled labor. Such work absorbs readily men from all classes of industry temporarily inactive more easily than any other activity.

"Unemployment relief depends largely on the initiative of local leaders, many of whom are advocating road and street building," he continued. "The results from money spent on good roads in a time of emergency such as the present remain long after the depression is forgotten.

"A man out of a job needs it where he lives. Highway work brings the job to the worker.

"The dollar spent on road and street construction has a double value. It pays the bills of the worker, thereby aiding in creating a stronger market for commodities, and it has a permanent value in decreasing highway transportation costs and reducing accidents that affect everyone.

"The public can buy needed roads and streets at a bargain now. Bonds for highways defer payments until more prosperous times. The savings due to the present low cost of roads and streets tend to offset the interest charges," he concluded.

TRUCKING AND TAXI GROUPS PROTESTING MASS. RATE BOOST

Boston, Mass., Sept. 14.—Protests against Commissioner of Insurance M. L. Brown's proposed increases of compulsory automobile insurance rates were made at an all-day hearing in the State House. The commissioner was urged by a representative of the Motor Truc'. Club of Massachusetts and also organizations of taxi owners to recommend passage at a special session of the Legislature to be held later this month of changes in the law designed to make the person who has accidents pay more.

Corporation Counsel Samuel Silverman, representing the city of Boston, also urged the commissioner to advocate a demerit system whereby a person responsible for an accident would be required to pay the first $100 of the damages.

The possibility of the matter being taken into the Supreme Court was mentioned by Corporation Counsel Silverman late in the day shortly after Judge Frederic Chase, representing forty-five companies writing auto insurance, had begun to introduce sworn testimony in the form of books and pamphlets. Mr. Silverman asked if this was being done in preparation to bring the whole matter in the Supreme Court and that if so he would ask that Judge Chase furnish him with duplicate copies.

The books and other records contain data and statistical information prepared by the Massachusetts Rating Bureau for the insurance commissioner. The latter finally told Mr. Silverman that he would cooperate with him in every way and that he would have access to all the books and papers being submitted by Judge Chase.

During the morning session Judge Chase in his opening remarks declared that he was appearing not to support the rates but to criticize them. "What the outcome of the special session of the Legislature will be," he continued, "no one knows, but until it is repealed or amended it is the law, and the 1932 rates must be promulgated." He then proposed to submit his case through a group of witnesses, but his statement brought forth a storm of protest. Various speakers said that people from the more distant points should be heard first, and this action was taken.

The speakers included Mayor Curley of this city, several members of the Legislature, representatives of the Massachusetts Auto Dealers Association, of taxicab drivers and taxi owners' organizations, etc., all of whom renounced the new rates.

NEW COMMERCIAL CAR REGISTRATIONS FOR FIRST

Name of Truck	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska
Autocar				54	1	21	10		4	4	33	1			3		4	49	156	13			10		
Brockway-Ind.	4	4	2	20		17	1	4	12		48	66	15	6	14	1	1	25	55		1	1	36		1
Chevrolet	948	258	643	2849	781	856	231	1090	1133	308	3283	2046	2087	1664	978	942	1186	940	1645	1886	1863	554	3035	380	1206
Diamond-T				26	1	26		1	1		282	25	25	24	12	10	10	47	36	25	61		80	2	14
Dodge	14	23	42	709	122	221	9	61	65	62	490	280	238	171	117	80	222	109	446	266	222	23	302	40	116
Federal	4			49	11	53	1	15	11		62	11	5	1	4		4	24	66	60	22	1	37	2	10
Ford	895	536	972	7668	1405	1478	310	1888	1595	586	4631	2380	2234	1533	1030	1208	1676	1296	4505	4101	2165	638	2973	598	1405
G. M. C.	25	8	7	218	71	59	11	11	22	11	160	161	39	39	47	24	27	82	271	164	68	9	145	18	43
International	91	42	125	380	148	160	60	125	156	59	950	494	581	413	217	272	103	244	406	336	512	80	469	162	348
La France-Rep'b'c				22	1	7			2	1	6	4	2	2	1			2	23	31	27	2	6	1	
Mack	4		15	82	2	75	6	10	12	2	65	14	13	6	23	11	33	62	145	21	18	3	33	4	15
*Pierce-Arrow				3														1	2						
Reo	5	7	8	264	36	106	11	30	16	11	73	57	110	34	28	6	44	63	160	124	88	5	48	18	22
Sterling				77		6					39	3		1			5	5	72	1	1		26	1	
Stewart		7		31		30	2				24	41		6	4		4	7	25	5			5	1	1
Studebaker	4	15	1	143	44	65	4	1	3	5	123	105	108	70	48	4	61	37	89	51	81	3	54	9	56
Whippet	7			4	3		1	4	3		15	8	3	3	2	2		5	1	6	4		16	1	3
White	8		9	106	22	31	1	39	38	6	44	9	15	12	14	17	8	37	120	18	32	7	41	5	9
Willys	3	5	2	40	41	35	1	2	6	13	100	73	62	66	36	7	37	18	23	46	103	5	61	10	52
Willys-Knight				16		1		5	1	1	10	16	1	4	1	1	3	4	1	1	6		10		1
Miscellaneous	7	5	3	557	34	49	4	14	9	12	416	86	39	41	28	10	8	48	134	113	60	2	159	24	32
Totals	2019	910	1829	13318	2723	3296	663	3300	3089	1081	10854	5880	5577	4096	2607	2595	3436	3105	8381	7268	5334	1333	7546	1276	3334

*One months' report.

NEW COMMERCIAL CAR REGISTRATIONS FOR FIRST

Name of Truck	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Mass'setts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska
Autocar		1		67		38	26	1	9	1	44	1		1	4		6	69	169	23			26		
Brockway-Indiana	1		3	5	10	46	19	33	47		74	190	5	9	30		22	76	131	11	31	2	82		11
Chevrolet	1584	325	939	3248	1057	848	259	1132	1049	384	4330	2402	2447	3007	1148	1106	1167	1050	1602	2604	1997	1637	3745	449	1666
Diamond-T	1			25	1	57	1				500	46	24	11	9	1	7	57	94	48	70	1	113	1	14
Dodge	36	81	47	762	132	268	15	70	74	42	495	248	178	233	108	71	150	123	496	259	224	71	390	42	111
Essex	1	1		34	5	16	2	6	3		8	13	8	6	4		8	6	45	23	6	2	6	1	
Fargo	4	6	3	31	25	23	1		1	1	81	27	16	52	15	1	10	15	59	31	31		30	18	8
Federal	6		2	95	3	39		4	17		95	17	16	2	7	2		28	73	90	24	1	68	3	2
Ford	1504	692	1234	8844	1714	1514	382	2013	1637	616	5915	3473	2396	2698	1530	1458	1491	1759	4431	6064	3176	1823	4500	766	2089
G. M. C.	34	22	35	454	112	118	43	37	54	28	296	253	83	108	91	42	33	95	328	309	117	43	228	32	95
International	104	42	220	376	198	176	39	113	133	70	1102	530	390	472	272	177	155	244	433	440	551	159	660	219	398
Mack	18	2	9	188	9	149	9	17	18	9	118	2	30	5	20	24	20	117	249	44	29	14	56	12	14
*Paige	1	1	1	14	1	14		1	1		12	8	2	3			2	2	10	20	3		20		6
Relay				2	4	6		1			11	29	1		6			1	2	3	5		5		
Reo	17	16	13	507	50	156	19	44	15	17	203	124	109	78	57	12	76	94	257	184	121	22	117	25	30
Republic	4	5		29		3	1			1	10		1	13	5			9	5	44	3	2	9		
Rugby		7	1	54	11	1	1	4	5	6	7	6	11	8	4	1		3	5	16	9	2	15	5	2
Sterling				133		11				1	60						5	11	97	8			9		
Stewart		13		36		73	7				28	66	2	28	2			24	72	9			18		1
Studebaker	8	14	1	80	5	25			5	1		33	8	13	14	2	4	13	30	8	16	7	35	4	6
Whippet	4	1	4	30	10	12	2	17	14	3	134	42	17	25	14	3	10	10	30	36	38	18	94	15	20
White	28	8	27	226	36	38	4	43	49	6	122	29	18	26	26	33	8	94	141	43	47	13	69	13	25
Willys	8	4	8	19	73	15	2	4	9	5	54	52	95	42	20	9	28	12	15	54	80	6	85	14	64
Willys-Knight		2		21	1	10			4	3	28	15	15	82	4	2	9	5	12	6	8	1	17	1	8
Miscellaneous	3	5	7	780	38	89	4	4	4	10	620	53	23	20	67	22	1	69	103	124	53	2	171	8	34
Totals	3366	1248	2554	16060	3495	3745	836	3544	3148	1204	14347	7659	6395	6942	3457	2966	3212	3986	8889	10501	6639	3826	10568	1628	4604

*Five months report.

Contemporary Comment

(Continued from Page 4)

the sorbitic steels, and sometimes even lower than the pearlitic steels.

Quenched steels, finally, with a martensitictroostitic structure and high ultimate stress give lower values of K than the sorbitic steels.

By investigating steels heat treated in different ways it was further found that widely differing annealing temperatures had a very slight influence on the fatigue limit. On the other hand the endurance is considerably increased by quenching and varies with the degree of tempering.

Lundgren further investigated the influence of different forms of the test piece and of different ways of carrying out the test. The radius of the fillet between the head and the cylindrical part of the test piece was found to have a considerable influence on the endurance. Test bars for cantilever loading were made with a radius of fillet of 0, 1, 2, 5 and 10 mm. A radius of 10 mm. gave a 90 per cent. higher fatigue limit than a radius of 0 mm., and 2 per cent. higher than a radius of 5 mm.

The number of rotations after which the fatigue curve becomes asymptotic was also investigated. Lundgren found between 1,000,000 and 2,000,000 rotations for two normalized carbon steels and less than 1,000,000 for a sorbitic chromium-nickel steel.—**Einar Ohman in Metal Progress.**

* * *

THE decline in the sales of cars clearly indicates a call for reduction of the motor car taxes. There is evidence that people are motoring less. Yet, in every scheme for raising revenue the possibility of extracting more from motor transport is considered. The £1 per horsepower tax was already too high, often exceeding the value of the vehicle taxed, but it was supplemented by a tax on petrol, which, this year, was increased by another 2d. per gallon. It is quite within the bounds of possibility that chancellors of the exchequer will levy further imposts in the future. If so, we should anticipate a reduction in the revenue.

On the other hand, if motor car taxation were reduced it would encourage both the purchase and the use of cars, so that the revenue might actually benefit from the reduction.

Every fresh burden on motoring deals a deadly blow at the hope of building up in this country a great export trade in motor vehicles. The only sure prospect of realizing this is to build up a home demand for cars which can be reckoned in millions instead of, roughly, one hundred thousand. Without a big home market we cannot provide for an output which would enable us to export cars on a really competitive basis. Our home consumption is adversely affected by taxation covering definite periods and the restriction on design by taxation on cylinder bore, which compels the use of small engined cars that are not wanted in other parts of the world where there are no horse power taxes.—**The Motor (England).**

English motorists have long suffered under much heavier taxation than we have in this country. Apparently it has reached a place where it is slowing up sales. Our legislators here might well take the lesson to heart.—*The Editor.*

AUBURN SALES CHIEF ON EASTERN TOUR

Boston, Mass., Sept. 14.—John Tainsh, sales manager for the Auburn Automobile Company, arrived here Friday on an Eastern trip among distributors and dealers.

Mr. Tainsh said that Auburn had added more than 900 new dealers since January 1, 1931, and that dealer stocks were at a minimum, averaging less than one and a half cars each. Orders now on hand, Tainsh said, indicated that September Auburn and Cord sales would be in excess of August, which were nearly 100 per cent. greater than August last year.

E. F. CHASKEL MOVES INDIANAPOLIS OFFICE

Indianapolis, Ind., Sept. 14.—E. F. Chaskel, manufacturers' representative, has moved from 878 Massachusetts Ave. to 2443 North Meridian St., this city.

The concern's leading lines are now the Duplex brake aid, manufactured by the Duplex Brake Engineering Company; the Mirrorlike line, the Gruss and Westinghouse air springs, made by the Cleveland Pneumatic Tool Company; Showay semaphore safety signals, speed control, made by the Compton-Murrow Company, and the Myers magazine oiling system, manufactured by the Chassis Lubricating Company, Rahway, N. J.

SEVEN MONTHS OF 1931 BY MAKES AND STATES

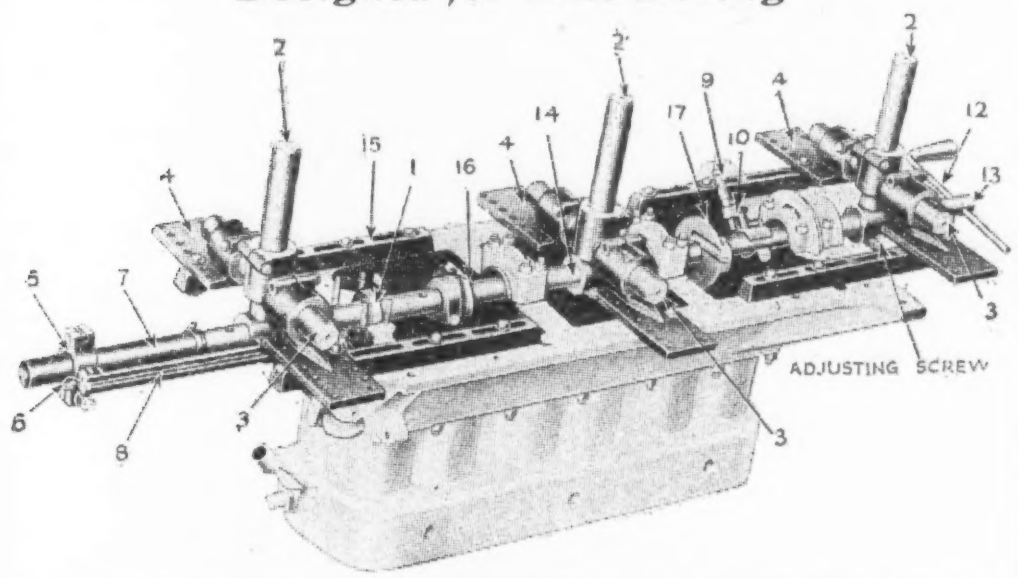
Name of Truck	Nevada	N. Hampshire	New Jersey	New Mexico	New York	No. Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	So. Carolina	So. Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Dist. of Col.	Totals
Autocar	2	2	77		428	2		30		3	167	13				2			16		8			30	1,143
Brockway-Ind.	1	8	56		405	1	4	51	7		137	6	13	1	5	36		2	20		9	4		1	1,101
Chevrolet	111	449	2284	409	5053	1666	343	2565	1120	609	3506	266	937	435	834	3904	369	231	1847	724	764	2336	248	243	64,045
Diamond-T		13	99	10	282	6	3	26	4	1	87	9		32	3	32		3	10	3	16	116		22	1,485
Dodge	25	39	490	30	1136	167	54	422	133	63	990	92	55	64	94	221	41	49	151	108	130	181	42	37	9,264
Federal		9	59	1	89	3		35	19	18	76	35	3		42	33			21	12	1	31		4	944
Ford	264	768	4036	494	9778	1684	364	4202	1169	1232	6042	676	849	401	806	4237	530	447	1927	1603	981	2448	372	682	95,698
G. M. C.	16	22	233	9	491	47	14	184	42	38	224	44	14	7	34	81	40	9	78	64	52	103	7	55	3,648
International	18	41	405	78	1323	191	264	600	149	122	792	49	60	232	131	988	64	98	201	159	164	435	48	59	13,604
La France-Rep'b'c		1	10		20	9		16	1	10	42	2	1		2	1			16	1	5	5		2	284
Mack	8	14	183		595	11	1	66	3	29	223	20	12	2	9	20	8	4	28	20	10	12	1	15	1,968
*Pierce-Arrow			1		1						1											1		1	11
Reo	4	26	119	9	321	16	16	121	19	33	182	38	7	15	13	87	22	20	13	46	31	69	10	6	2,617
Sterling	1	2	41		75			16		14	64	4			3					5	2	31		6	501
Stewart		16	41		396			65			145	2			1	1			5		2	23			890
Studebaker	6	19	72	4	187	13	17	177	11	26	174	17	7	56	20	36	16	12	16	72	27	109	17	4	2,299
Whippet			3	3	11	1	2	5	2		21			3	1	6	2		1	2		7	1		162
White	6	4	128	7	302	16	1	130	8	24	130	4	7	1	24	46	8		40	33	10	12	6	17	1,612
Willys	1	11	47	3	193	17	11	148	11	3	191	6		12	15	38	2	33	18	15	46	131	7	1	1,807
Willys-Knight			6		14		1	2	2	1	9	1		1	2	2				2		1			127
Miscellaneous	13	2	264	10	613	43	3	342	22	71	291	11	19	10	10	118	26	1	59	176	26	137	10	32	4,203
Totals	476	1446	8654	1067	21713	3893	1098	9203	2722	2297	13494	1295	1984	1272	2049	9889	1128	909	4467	3045	2284	6192	769	1217	207,413

SEVEN MONTHS OF 1930 BY MAKES AND STATES

Name of Truck	Nevada	N. Hamp.	New Jersey	New Mexico	New York	N. Carolina	N. Dakota	Ohio	Oklahoma	Oregon	Penn'vania	Rhode Isle.	S. Carolina	S. Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washingt'n	W. Virginia	Wisconsin	Wyoming	Dist. of Col.	Totals
Autocar		1	102		221	11		101	13	13	261	28				7			20	3				25	1,292
Brockway-Indiana		30	225	12	1014	2		122	25	1	294	17	2	4	13	33		23	56		23	24		7	2,765
Chevrolet	64	435	2307	456	5600	1650	457	3155	2117	672	4033	315	1013	631	1237	5776	402	273	2603	961	946	3009	178	180	79,652
Diamond-T		41	114		392	5	13	39	6		103	5		11	7	8		10	3		18	122		15	1,993
Dodge	45	43	510	28	1095	131	33	458	218	78	967	83	38	60	137	305	44	53	166	118	169	234	56	51	9,846
Essex		1	23		78	4		26	3	7	47	1	1	1	2	9	2		1	1	3	6		2	422
Fargo	2		37	6	119	9	21	49	29	11	80	15	5	10	5	70	1	5	7	27	9	28	7		1,041
Federal	1	8	81		141	4		74	59	46	139	20	8	4	56	22		2	37	20	7	61	1	5	1,390
Ford	200	766	4598	546	10932	1794	607	6036	2429	1529	7986	601	1132	744	1485	6554	824	589	2626	2234	1271	3858	368	548	123,956
G. M. C.	14	23	295	14	846	47	17	406	131	74	454	65	21	22	96	173	19	17	114	135	101	172	8	51	6,405
International	11	50	253	38	1205	170	320	781	414	121	1010	52	57	363	199	1063	69	98	233	197	246	598	40	23	15,784
Mack	7	23	369		856	15	1	110	55	46	510	21	6	11	40	50	9	5	32	24	2	19	1	6	3,400
*Paige			14		23	2	1	12	1	3	33	1			3	7	1			2	3	4	1	1	234
Relay			10		86			27	2		95	1				10			7	1	7	12		2	336
Reo	3	52	233	5	577	22	36	267	56	39	344	45	9	72	34	174	29	37	58	63	64	151	3	16	4,752
Republic			10		3	4		15	2	9	27		2	1	6	1			29		4	1	1		259
Rugby	1	2	18	1	26	5	7	27	7	20	39	1	2	6	3	22	8	1	4	30	6	9	3		432
Sterling	2	2	79		147			22		11	144	8								15		58		6	829
Stewart		18	44		627			90	1		355	2		1	3	6		7	22		8	42		3	1,608
Studebaker	1	6	43	4	68	4	2	29	6	7	84	10	3	4	10	24	2	1	5	10	7	19			681
Whippet	2	2	36	7	99	9	9	144	38	9	144	2	2	10	9	51	2	9	12	8	9	47	3	3	1,269
White	1	2	148	7	471	28		322	49	39	255	21	13	2	37	134	7	7	70	85	14	25	8	25	2,942
Willys		4	7	12	78	23	27	103	49	6	80	2	2	40	9	77	1	9	37	12	13	89	8		1,465
Willys-Knight	1	1	36		39	3	6	37	2	5	37			4	1	8		2	9	2	4	7	1		459
Miscellaneous	8	8	281	1	606	31	4	356	31	69	300	8	21	20	18	88	20	1	81	217	28	152	1	18	4,682
Totals	363	1518	9873	1137	25249	3978	1561	12808	5743	2815	17801	1324	2337	2021	3410	14672	1440	1149	6232	4165	2962	8747	688	987	267,894

Production--Engineering--Factory

Spence-Bergen Boring Machine Designed for Line Boring



In operation the new Spence-Bergen line boring machine is designed for maximum flexibility and accurately to handle any line boring job. The manufacturers state that it is so easy to operate that any mechanic can produce a factory job without having recourse to hand scraping and fittings of bearings.

The overage mechanic will line-bore an average four-bearing motor from start to finish in about two and one-half hours, with the Spence-Bergen machine, and the mechanic can be certain that the job is correct, for the size of the finished bore is held to within one-half thousandth of the size desired.

This machine will service all automobile, bus, truck or tractor motors. It has three boring bar supports and extension bars so that the end supporting brackets may be used beyond the ends of the big motor blocks. It will bore camshaft bearings with the same accuracy and precision as main bearings.

One advantage of the Spence-Bergen line boring machine is that no extra equipment is necessary for line boring camshaft bearing, the makers state.

The adjustment features of the support bracket cross arms, and vertical members, make it possible to set the boring bar to either side and to any depth in the crank case for camshaft line boring work.

The horizontal crossarm floats in the support brackets and as the vertical members can turn or slide freely the machine becomes fully self-aligning, regardless of how warped or irregular the motor crankcase may be or in what position it is clamped on the block.

The adjusting screws on the bearing at the lower ends of the vertical bars take up all wear in the bearings. This is designed to insure a clean, smooth bearing surface, free from any chatter marks.

The boring bar is made of a special alloy steel which is positively guaranteed against twisting, warping or bending under ordinary working conditions. The special cutting tool locking device lessens the strain on the boring bar, thus insuring a straight, true aligned boring bar.

Here is shown a sectional view of the internal cutting tool locking device, and as it locks the tool lengthwise of the bar it does not set up any bending strain or peening action in the bar as a set screw used to lock a cutting tool does, consequently the boring bar will stay straight and as the cutting tool is not moved in or out in locking, makes the setting of cutting tools to micrometer setting extremely easy.

Figures 9, 10

The micrometer is mounted in a special frame which is instantly secured to the boring bar by the means of a spring, which eliminates the inaccuracies caused by trying to hold the micrometer to the bar while locking the boring tool.

The simplified feeding device is most efficient, allowing no forward or backward movement of the bar. Also allows full length of the bar to be used in boring long cases. Immediate release allows bar to be moved readily, without releasing feed nut.

Fig. 17

The bearing facing attachment is easily attached to the boring bar and can be placed in any position.

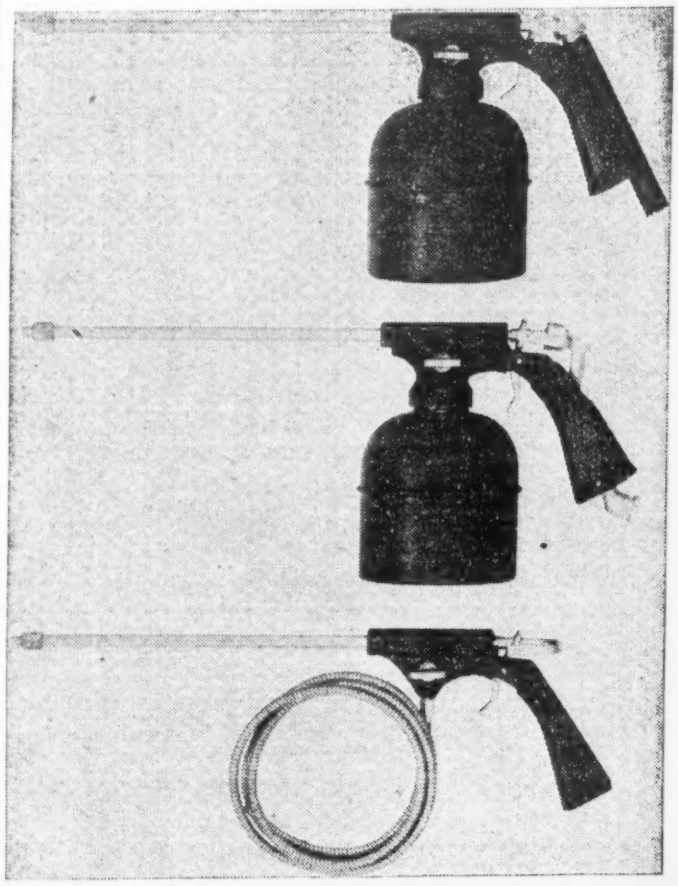
A unique feature is the angular cutter blade. It leaves a very smooth finish and is not influenced by the opening between the cap and base.

Fig. 16

The filleting cutter will cut both right and left fillets on all bearings within the range of the machine.

In cases where it is impossible to fasten the boring bar support brackets to the face of the crank case they can be bolted to the ends. The same accurate alignment of boring bar with bearings is assured as when the support brackets are clamped to the face of the crank case.

Toledo Spray Gun Set For Small Garages and Service Stations



A complete set of three oil-spray guns, designed for use in garages and service stations, has recently been announced by the Toledo Steel Products Company, Toledo, O.

These three guns, known as the Toledo Jaco Gun Model J-1, J-2 and J-3, fill every automotive oil-spraying need.

The J-1 may be connected instantly to any tire-inflation chuk, and is used for spraying lubricating oils or as a straight air gun.

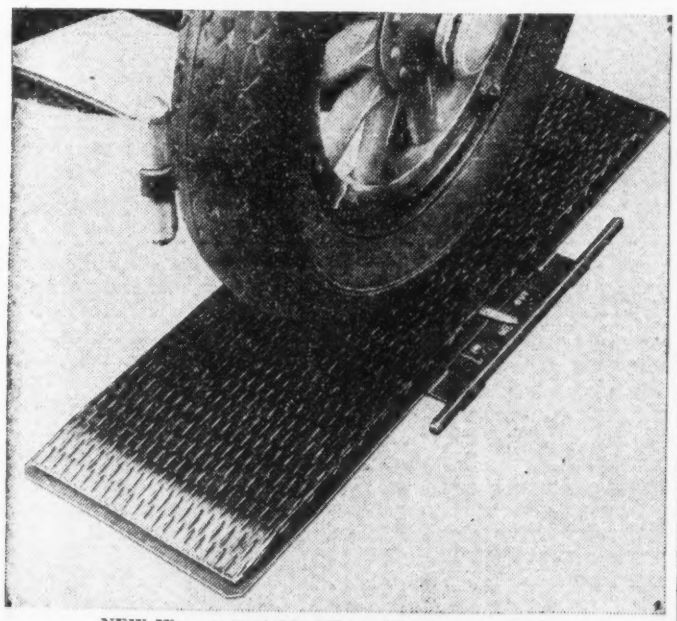
The J-2 embodies exclusive features found in the J-1 gun, However, it is equipped with a permanent hose connection, and is used where a permanently connected gun is desired.

The J-3 is an engine-cleaning gun and sprays kerosene or any other cleaning fluid. It may be used also as a straight air gun or for lubricating or penetrating oils.

These three guns combine to make one of the most complete spray-gun assortments ever offered to the garage and service station field.

Further information may be obtained by writing the Toledo Steel Products Company, Toledo, O.

New Weaver Portable Alignment Indicator



NEW Weaver Portable Wheel Alignment Indicator.

The new Weaver portable wheel alignment indicator is introduced to meet the demand for a simple, inexpensive device to indicate immediately the true running alignment of front and rear wheels.

It employs the same principle that is used in the Weaver stationary alignment indicator—that of measuring tire side thrust caused by excessive toe-in or toe-out.

Because of its portability—the handle makes it easy to carry to the job—it is convenient for checking correction work in the shop.

This indicator is also valuable to the tire shop to demonstrate to customers one of the major causes of tire wear and to assist them in securing maximum tire mileage, the makers state.

SPARTON DEVICE PERMITS RADIO CONTROL FROM CAR STEERING POST

Jackson, Mich., Sept. 14.—Remote control for their automobile radio which permits the dial to be mounted on the steering column is one of the innovations announced by Sparton. Another noteworthy feature is application of the new Lafoy automatic volume control to the automobile radio.

With the new dial arrangement it is possible to mount the set in much more convenient places than before.

The Lafoy automatic volume control is said to control the variations in volume common to most automobile radios when going under viaducts and similar places.

It also has a bearing in materially reducing sounds due to strong wires which has been one of the hardest difficulties to overcome in perfecting automobile radio for metropolitan use, it is claimed.

Goodyear Experimenting With Air Wheels for Cars

AKRON, O., Sept. 14.—Experimental application of tires similar to Goodyear Airwheels, those big, pillow-like tires of extremely large air volume but low pressures, successfully used for several years on airplanes to insure safe and comfortable landings, is now being made on automobiles and trucks, according to announcement by Goodyear Tire and Rubber Company development engineers. The tire is already in use on tractors.

For three years this company has been experimenting with this big tire applied directly on a hub, pointing out that this is probably the next step in the steady trend to larger tire and smaller wheel diameters, which has been going on in the industry, starting with the first oversize tire, the intermediate balloon and then the present balloon tire.

An interesting comparison of the greater cushioning and easier riding qualities of the new Airwheel type tire with the balloon tire in present use on automobiles and trucks is that the new large tire has a greater air volume, but requires only ten to twenty pounds pressure, while the present balloon calls for from thirty-two to forty pounds.

Again the new Airwheel type balloon offers two to two and a half time more surface to the road with greater resultant traction. Furthermore, it has greater anti-skid properties on slick pavements.

For present experimental purpurposes Goodyear is making this new tire in several sizes. The tractor market for the new tire includes golf courses, airports and citrus fruit groves. While the development of the new tire for use on trucks and automobiles is still in the experimental stage, the tire is ready now for use on tractors. The tractor application involves a simple change in the hub. Four type models of tractors have thus been equipped. On golf courses and airports the tractor equipped with these big tires does its work without injury to the turf or ground surface, and in the citrus groves, where the going is soft and sandy, the broad surfaces of the tires pull both tractor and its heavy equipment through with ease.

In experimenting on trucks with the new Airwheel type tire, changes were necessary on brakes, elimination of wheels, and revamping the steering gear to hydraulic operation. The truck thus equipped is easily steered and driven.

Trucks equipped with the new Goodyear Airwheel type tire have traveled from 25,000 to 40,000 miles in satisfactory test runs and the tires are already in production for the tractor application as marketable units. At the Cleveland air races this year a Goodyear service car and an airport tractor equipped with these new tires were in operation at the Cleveland airport.

Low Production Periods Make Conservation Essential

THESE are trying times. One is tempted to cast all thoughts of expendiency to one side, and, ignoring traditions of good sound business policy, revert back to old "rule-of-thumb" methods. For the time being, regardless of the future effect upon his own business or his industry, there is a strong tendency on the part of the manufacturer and producer to close his eyes to the real situation and disregarding facts and figures, to go blindly ahead with day-to-day haphazard policies with the vain hope that the general result will justify the action.

In these days of low sales prices, one often hears the question, "Is selling below cost ever justified?" In answer, it can be truthfully said that the ultimate success of any business depends upon sound policies operating over a period of time. Price cutting is certainly not a sound policy, and if resorted to, can in a very short time result disastrously.

Destructive selling policies and prices have been resorted to and sometimes apparently on the surface "gotten away with," but if results are correctly analyzed, it simply means in many cases that the losses on castings sold below cost have been offset by profits on other transactions.

Many arguments are advanced for cutting selling prices. In an effort to justify such action, it is sometimes pointed out that fixed expenses usually remain the same in dollars expended each month, but that decreases in percentage relation or tonnage cost occurs when these charges are spread or apportioned over a greater volume of business. Fixed expenses include not only fixed charges such as:

Taxes on buildings, taxes on equipment and inventories, depreciation on buildings, depreciation on equipment, insurance on buildings, insurance on equipment, insurance, employer's liability; insurance, group life.

Also what might be termed "nucleus organization expense" which is necessary in order to maintain a minimum organization when operating at a very low point of productive capacity. There is also included in fixed expenses the regular expenses required to maintain the skeleton structures of clerical departments and foundry departments, the latter including shop superintendents and foremen of foundry, productive, service and auxiliary departments, all working on a basis of their minimum organization requirements.

An executive who has an adequate cost system should be supplied with definite figures each month, showing the relation of the fixed expenses to varying rates of production per month, and this should be a valuable aid in determining the true cost of castings under varying conditions. But most of all, such information should assist the executive, when necessary, to readjust his cost figures when bidding on sizable orders which will have an appreciable effect on his monthly or yearly volume of business. This permits him to "readjust"—not "cut"—his prices on an intelligent and safe basis.

Uniform Plan Aids Executives

The uniform cost plan of the Steel Founders' Society provides the means of separating the variable from the fixed expenses, and thus the executive can easily ascertain the deadline between the profit and loss on a transaction, taking into consideration the size of the order and the consequent decrease of fixed expense per unit of production.

In contrast to this policy of quoting prices based upon facts and figures, there are some producers who over-estimate the effect of volume on the price of castings. This naturally results in destructive price quotations which prove disastrous and adversely affect the entire industry.

Extreme caution should be exercised when quoting prices. In view of the present abnormally low tonnage of business available and the generally prevailing low selling prices on all types of castings, it would seem a suicidal policy to drastically cut prices on any one line of product, hoping to make it up on others.

Do not become a party to "auction bidding," where every founder connected with the deal is told he is not the low bidder, and then out of courtesy is allowed and encouraged to cut his price further. The answer is to know your true cost, quote fair prices and adopt a policy of firm bidding.

Conservation Policy Recommended

All producers cannot hope to operate at a profit at all times. Conditions militate against this possibility. During periods such as we are now passing through, it would seem that a policy of conservation should prevail. Conserve resources and your own market as much as possible. Do not be misled by the idea that increased tonnage always favorably affects the monthly or yearly results. Sales prices may be entirely too low regardless of volume.

There never was a time when the monthly financial statement and profit and loss statement should be more closely watched. Recently, a manufacturer during two consecutive months had practically the same volume of sales. In the first month he showed a satisfactory profit, but during the second month he showed a loss. Fortunately, the uniform cost system showed him the real cause for this sudden turn in events. He was producing five general classes of products. While he had made a satisfactory showing on four out of five, the losses on the fifth line of product more than offset the total profit on the other four. He could have had considerably more business on class five product, but he turned down the business and thereby increased his profits as a whole by concentrating his efforts on the four profitable lines. This was accomplished in spite of the fact that he was forced to absorb a larger proportion of foundry overhead, as well as selling, general and administrative expenses on the four remaining groups of castings.

It is well to remember that unwise selling policies waste assets and resources much faster than one would normally expect. The answer is: Know your costs, study them and be governed accordingly, and thus avoid excessive losses during periods of low production. **(H. S. Bartholomew in The Steel Founder).**

STEEL COMPANIES HOLDING GAINS

(Continued from Page 1)

ever, offset by a gain in Bessemer steel production at the Campbell plant of Youngstown Sheet and Tube Company.

Several companies reporte increased operations, but the change was not large enough to affect the average. Youngstown Sheet and Tube Company's plants in the district are more active than recently. The current week's schedules show production nearly 30 per cent., based on raw steel production. In trade circles it is said that the company plans shortly to resume production on its large seamless pipe mill. Ingot production for Sheet and Tube later in the week may gain. Schedules for this and other important steel producers in the district are uncertain, but the outlook for improvement soon is fair.

Republic Steel Corporation again is operating on a 35 per cent. basis in its Youngstown and Warren plants. Ingot production, while slightly lower than last week, still is substantially ahead of other valley independents. All three of the company's electric weld pipe mills here are active, reflecting moderate improvement in the company's pipe sales. After Monday Republic's sheet plants at Niles, O., are expected to operate at capacity.

Carnegie Steel Company production is estimated by trade authorities at 50 per cent. of capacity, up 5 per cent. from the recent rate and approximately the level prevailing in Carnegie Steel's Youngstown mills this week a year ago.

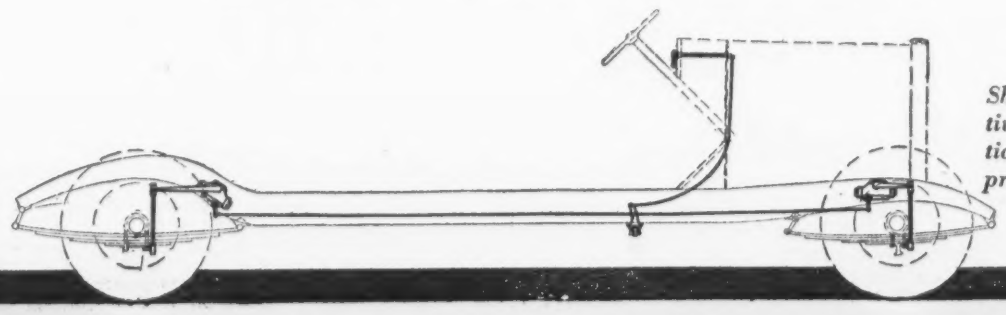
Operations of Sharon Steel Hoop Company are continuing near the 34 per cent. level, the average for this company's plants in recent months. Of six open hearths at Lowellville, O., two are melting for Sharon Steel. Unevenly weak demands for sheets and strip are causing a continuance of irregular schedules at the company's plants in Youngstown and Sharon, Pa.

Smooth out the rough spots with the NEW MONROE RIDE SELECTOR

On well paved avenues, the Ride Selector gives full resiliency to the car's springs. Then you hit a rough road—simply touch the Selector lever on the dash, and all four hydraulic eliminators are set to absorb the hardest shocks. And the Ride Selector operates with complete effectiveness, regardless of the number of passengers in the car. This revolutionary advance is a powerful new selling feature—a feature that can be dramatically, convincingly demonstrated. Let us install the Monroe Ride Selector on your test cars. Give it thorough, exacting tests. Note how easy it is to operate—how all roads feel the same—and how there is a notable absence of side sway and body weaving. The Monroe Auto Equipment Company, Monroe, Michigan.

M O N R O E

RIDE SELECTOR



Showing how simply, yet effectively, the Ride Selector functions—instantly exercising the proper control on all four shock eliminators.

Have You Heard The News?

Maybe it would be better to say have you SEEN it. We mean the July passenger car registrations which appeared first in this publication on September 3. Then came the seven months' complete figures on September 9. No other publication gave those figures for days afterward, if at all.

But there's more to news publishing than registration figures. How about these stories which first saw print in Automotive Daily News?

STORY	*Published and Delivered to Subscribers on*
N. A. C. C. Production Estimate for August, 1931	Sept. 10
N. A. Beardsley Named Gen. Sales Mgr. Willys Overland	Aug. 29
Chevrolet August Output Tops August, 1930	Sept. 2
229 Manufacturers Apply for Space M. E. A. & N. S. P. A. Show	Sept. 2
Graham N. Y. Now Factory Branch	Sept. 4
Mechanical Details of New Canadian Frontenac	Sept. 4
M. E. A. Reports July Gain Service Parts Shipments	Aug. 29
New Income Tax Ruling Requires Dealers to Show Income Finance Costs	Sept. 8
Auburn Shipments in August Triple Last Year	Sept. 4
Leland Withdraws $6,000 Suit Against Henry Ford	Sept. 4
August Rim Output Indicates Upturn in Car Production	Sept. 10
General Motors August Sales Analysis	Sept. 9
Bendix in Lubricating Field	Sept. 5

And Hundreds More

Such service means high reader interest, that property of a publication which means dollars in the advertiser's pocket.

While you are spending money to make sales, spend it in the leading paper, which is the one that serves better than others. In the news field Automotive Daily News is supreme.

Automotive Daily News

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MAKERS OF BUSES, TRUCKS, TRUCK ACCESSORIES, SHOP EQUIPMENT, ETC.

A. E. R. A. ISSUES

Daily Distribution 20,000 Copies

September 26, 28, 29, 30
October 1 and 2

Distribution of EACH of these issues in addition to our regular circulation:

1,000 daily distribution at Atlantic City.

5,000 truck fleet owners throughout the country.

2,000 bus operators.

1,500 jobbers of shop equipment parts, accessories.

All exclusive truck dealers and distributors in the country.

THE AUTOMOTIVE DIESEL ENGINE

(Continued from Page 5)

vive in a really competitive market.

Too Many Designs

He who has ever taken the pains to wade through the large number of patents covering fuel injection systems and Diesel combustion chambers must admit that a large majority of them do not have any reason for existence as viewed from an economic standpoint. The competition that is sure to come in the automotive Diesel field will weed out all those designs that have no other merit than just being different from their competitors.

Aircraft Diesel

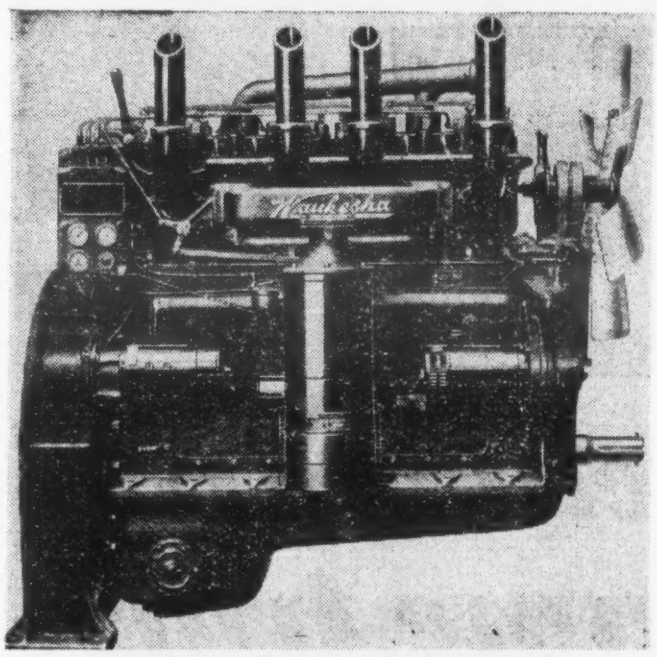
In the foregoing, no mention was made of one future field for the high speed, low weight Diesel that offers the brightest opportunities—the airplane and airship. Here the ratio—advantages over the gasoline engine versus increase of cost—is shifted very much in favor of the Diesel. From the advantages mentioned before, the higher torque at lower speed of the Diesel loses its importance. But there are three new advantages of the Diesel aircraft engine over its gasoline competitor to be added: (1) reduction of fire hazard, (2) reduction of the combined weight of the engine plus fuel beyond a certain travel distance (3 and the elimination of radio interference caused by the ignition system of the gasoline engine.

Figures published about the Packard and the Junkers aircraft Diesel show that these engines use about 20 per cent. less weight of fuel for a given length of journey, while the saving in fuel costs amounts to about 75 per cent., compared with a gasoline engine. There is little doubt left that all these advantages will ultimately bring the airplane Diesel to dominate all but the smaller engines in this field.

Cost vs. Advantages

It is hard to say how much time will elapse before the automotive Diesel takes possession of those markets where its many advantages counterbalance the higher cost sufficiently to make it appear superior to the gasoline engine. This depends on too many factors to allow a safe prediction. It has already penetrated in light industrial and heavy automotive fields, where a few years ago the gasoline engines had no serious competitor. Time and experience are the only teachers that can show us how to make the automotive Diesel as simple and reliable as it must be in order to be fully successful.

Standardization and specialization in the manufacture of its fuel injection parts, together with modern mass production methods, should then make it possible to sell this engine at a cost not higher than 50 per cent. over the price of a modern gasoline engine of the same size. And as to its weight, an increase of 10 per cent. to 20 per cent. over that of the gasoline should be sufficient to compensate for its higher working stresses and the weight of the fuel injection system.



WAUKESHA automotive type Diesel, exhaust side

G. M. IS SPENDING $500,000 TO PUSH OAKLAND-PONTIAC

(Continued from Page 1)

and outdoor advertising and sales promotion work.

The copy for Pontiac sixes is using a dark background with an impressionistic illustration of the automobile. Featured in the advertising will be the phrase "riding comfort," and low price. Unlike usual automobile copy names of dealers are being used at the top of the text, instead of the bottom. Oakland copy is featuring performance and fine car ownership at low cost.

The schedule of advertising is dependent upon sales by dealers. Copy is to be run once a week. A total of 1,700 newspapers were affected by the schedule during the last weeks in August and an equal number will be used until the advertising campaign closes in October

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

Chevrolet Men Go West; Detroit Plants Active

(Continued from Page 1)

in exsistence. Since that time more than 41,000 bodies have been built there. At present nineteen different types are being manufactured, and current employment is above 600 men.

Outside of this there hasn't been much broadcasting of activities in the metropolis of the motor industry. But this does not mean that the plans are inactive by any means. Production may not be much to brag about, but there's lots going on just now. Unquestionably 1932 that we are not being told about—models are being given the gravest consideration and plans for the new year are under way. However, it is far too early to be talking about them.

Reports continue to come in from the hinterland of retail sales activities. It is evident that cars are being sold, even if production is comparatively low. But this is regarded as a healthy sign that the manufacturers are not overloading their dealers.

Dodge Brothers report a continued gain in overall retail deliveries, as compared with a year ago this time. For the week ended August 29, Dodge registered its eight consecutive weekly gain, as compared with the same time a year ago, a gain of 81.9 per cent. The gain for the four-week period of August was 83.2 per cent. over the same period a year ago.

Deliveries of Dodge trucks for the week ended August 29 showed an increase of 4.3 per cent. over the previous week. Retail deliveries for the last two weeks, compared with the same two weeks in 1930, increased 8 per cent. with the four-week period, showing a gain of 24.2 per cent. over the same period a year ago.

HALL OF DUESENBERG WEDS HELEN M. SLUSS

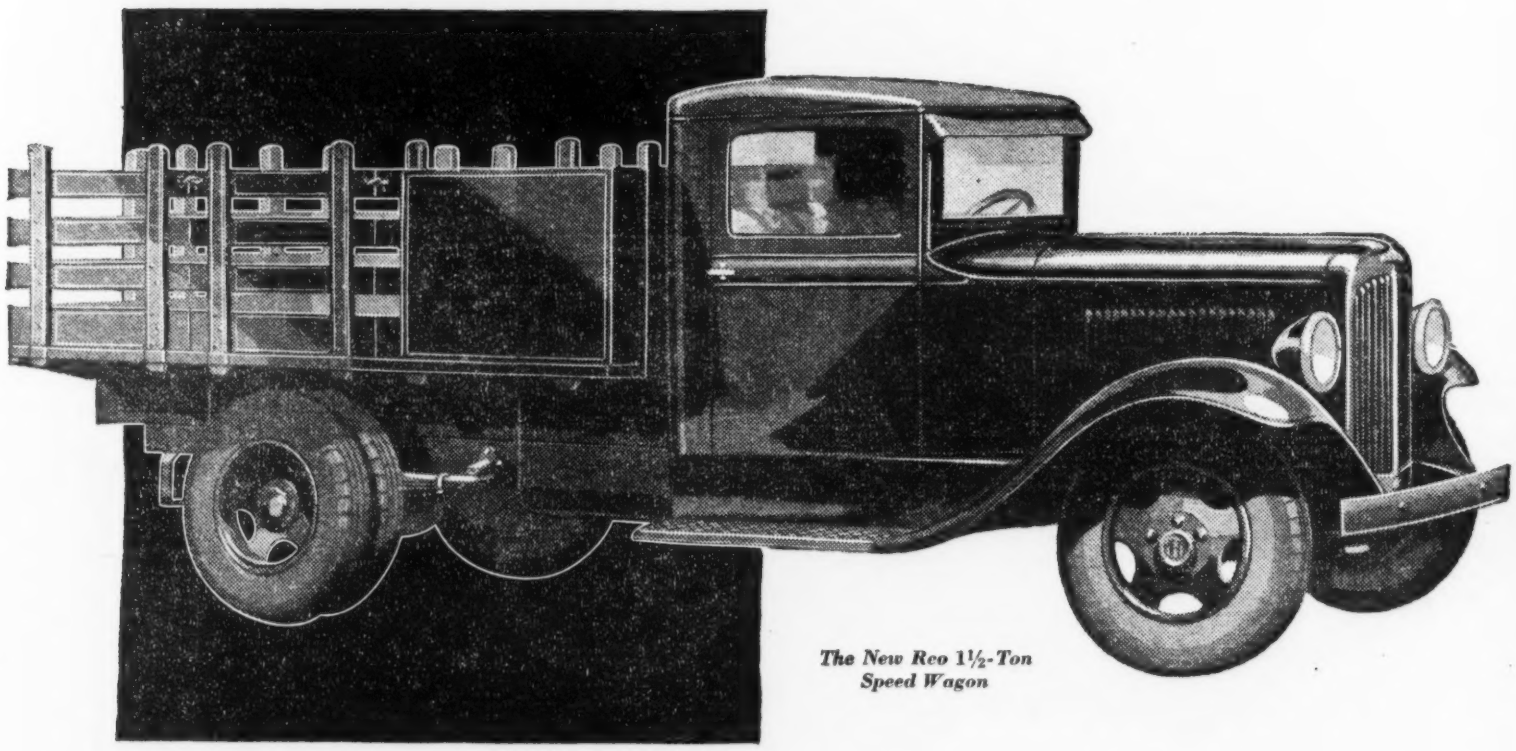
Indianoplis, Ind., Sept. 14.—Vance C. Hall, export manager for Duesenberg, Inc., and Miss Helen Mae Sluss, were married here September 5. Following the wedding ceremonies Mr. and Mrs. Hall left for a honeymoon trip through the eastern states.

How much money will you earn in 1932?

Every prospect is YOUR PROSPECT *with* CHRYSLER *and New* PLYMOUTH

REO's SPECIAL OFFER

a new franchise in the volume truck field!



The New Reo 1½-Ton Speed Wagon

Few Trades Necessary

Wire from a Reo dealer: "Delivered 23 new low-priced Speed Wagons in 30 days; 21 involved no trade-ins, all separate deals".

This, of course, is an exceptionally high average of clean deals. But it is a fact that a very large percentage of all sales to date of the new $625 Reo 1½-ton Speed Wagon have involved *no trade-ins.*

Business of this kind is highly profitable—particularly with these remarkable new Speed Wagons selling in big volume all over the country.

Fill in the coupon now and get full details regarding Reo's new Special Truck Franchise, carrying full dealer discounts. A special finance plan makes the arrangement possible at a small investment.

Since July first, over 400 new dealers have signed Reo contracts

REO MOTOR CAR COMPANY · LANSING · TORONTO

The New 1½-Ton Speed Wagon

$625

Four-Cylinder $625, Six-Cylinder $725
Chassis f. o. b. Lansing, Michigan—Dual Wheels $22 Extra

REO MOTOR CAR COMPANY, Lansing, Michigan ADN 915

Please send me at once—either by letter or through your representative—details of the Reo Special Truck Franchise.

Line(s) now handled_____

My Firm Name_____

Address_____ (City) _____ (State)

By_____